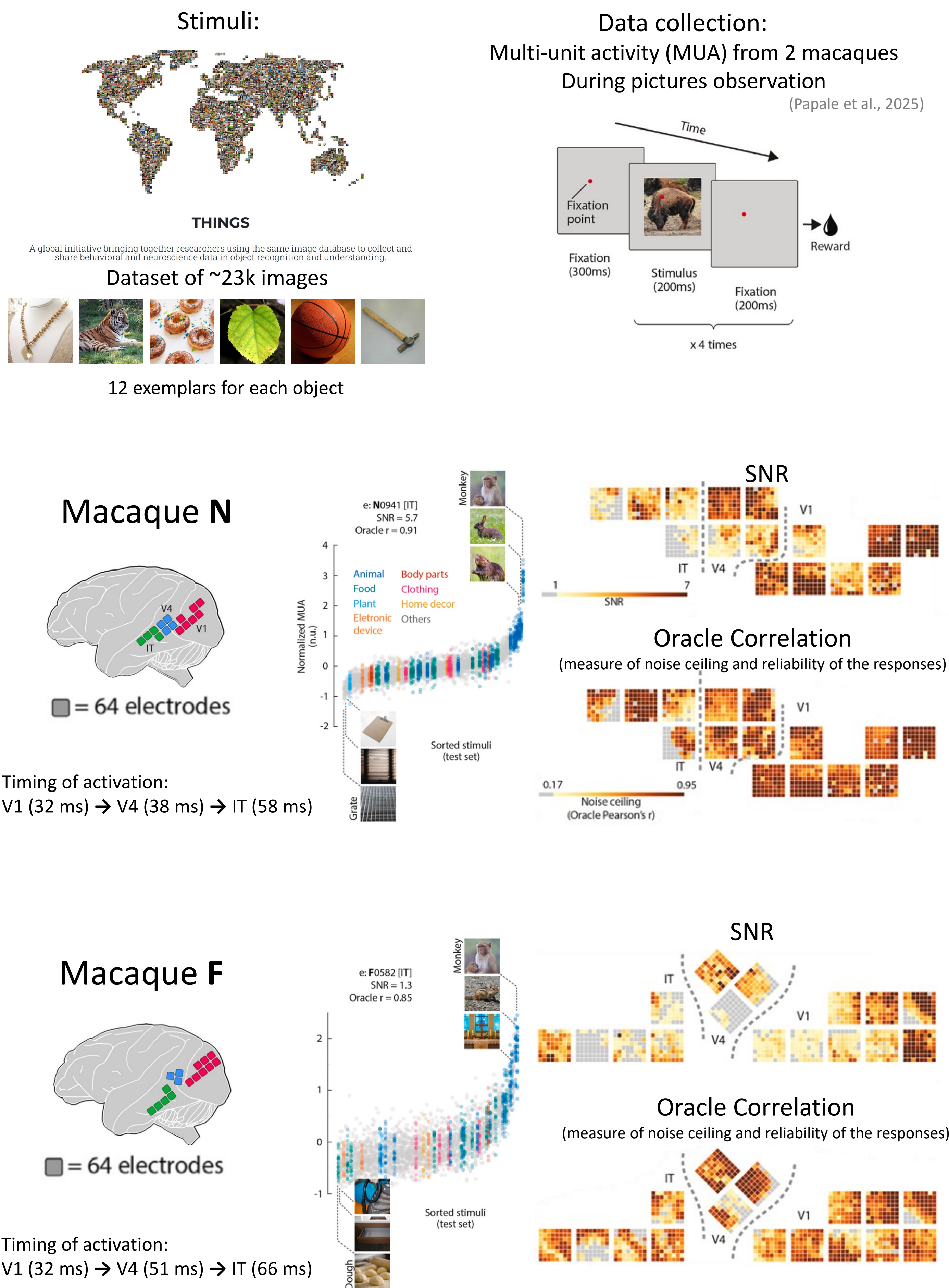


## Background

Distributional Semantic Models capture semantic representations leveraging statistical recurrences of words as they cooccur in human language. Specifically, they assume that words with similar meanings appear in similar contexts. Thus, text-based models could encode multimodal semantic information as a form of compressed version of the world (Gunther et al., 2019).

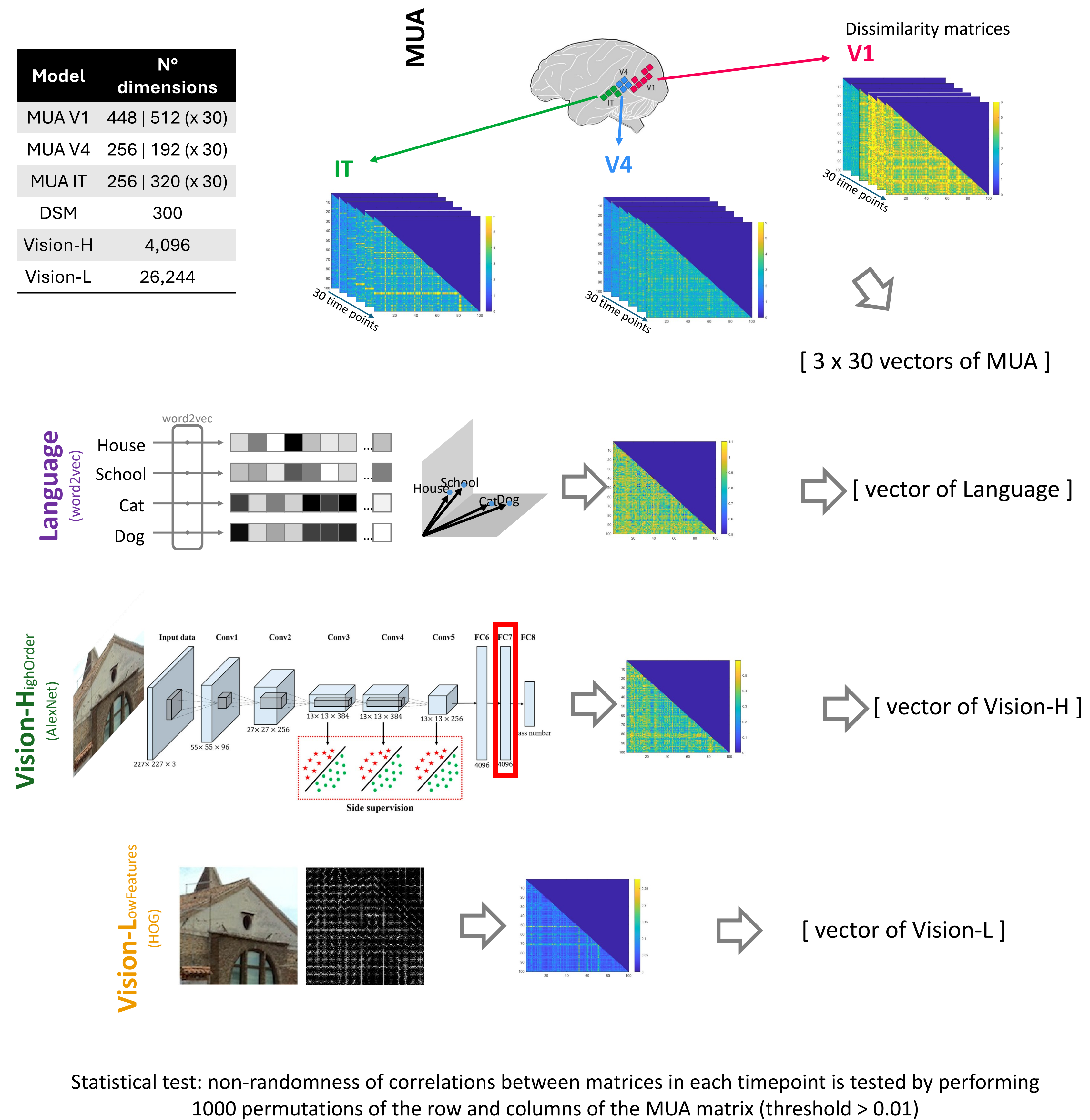
If this is the case, we should observe a representational isomorphism between DSMs and neural activity in animals that do not use (English) language.

## Materials

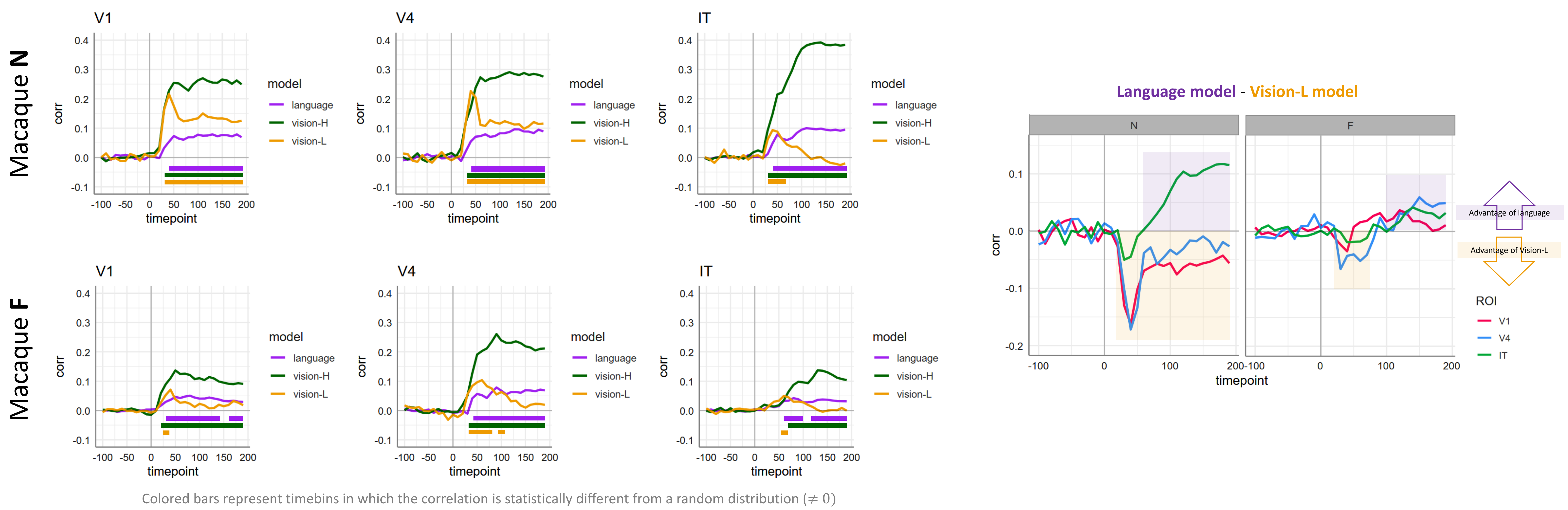


## Data analysis

**Representational Similarity Analysis:** isomorphism between representational formats.  
[ Spearman correlations between vectorized lower triangle matrix of **MUA** and **other models** ]



## Results



## Conclusions

- 1) Text-based semantic models can **capture perceptual information** that are not represented in their **input modality**. In fact, perceptual information could be **implicitly encoded** in the context in which similar words are used. Such implicit sensorimotor knowledge could be captured and "decoded" by distributional models which is built upon statistical regularities.
- 2) Vision-based and Text-based semantic models might share similarities in how they promote high-order semantic abstractions in categories.
- 3) Biological entities (primates in this case) tend to **cluster and categorize objects** in similar ways along the VVS, suggesting that the multimodal organization of the semantic system could arise from the neural architecture that underlie similar discretization processes of analogic information across species of primates.